Whales Dolphins & Porpoises

of British Columbia, Canada

Fisheries and Oceans Canada
Pêches et Océans Canada
Canada

ISBN 0-662-24720-5
Cat. no. Fs23-295/1996E

Aussi disponible en français.

Illustrations by Pieter Arend Folkens

Researched and written by Valerie Shore
Photography by Graeme Ellis & John Ford
Designed by Neo Graphic Communications
Printed in Canada

Whales Dolphins & Porpoises

OF BRITISH COLUMBIA, CANADA

Acknowledgments

There has long been a need for a simple booklet such as this, describing the whales, dolphins, and porpoises found in the waters off British Columbia. Thanks to the generous contribution of outstanding illustrations by Pieter Folkens and the donated photographs of John Ford and Graeme Ellis this was made possible. Both John and Graeme provided comments on the text along with Jane Watson and Brenda Austin.

The efforts of Kelly Francis, Vik Peck, and Ed Lochbaum in getting this booklet to publication are also gratefully acknowledged.

Table of Contents


Chukchi Sea
Arctic Ocean
Alaska
Bering Sea
Yukon
Gulf of Alaska
North Pacific Ocean
Pacific Coast of North America
British Columbia
Washington
Oregon
California
Mexico
Baja
Alaska
Juneau
Prince Rupert
British Columbia
Queen Charlotte Islands
Vancouver Island
Vancouver
Victoria

Introduction

Few animals on earth give us such a sense of wonder and excitement as whales, dolphins and porpoises. Seeing one can be an unforgettable thrill, perhaps because it gives us a glimpse at an underwater world so different from our own.

More than 17 species of whales, dolphins and porpoises — which as a group are called cetaceans (pronounced '*set-AY-shans*') — can be seen off the B.C. coast. Many are seasonal or infrequent visitors. They range in size from the small harbour porpoise to the colossal blue whale, the largest animal that has ever lived on earth.

What are cetaceans?

There are about 80 known species of cetaceans in the world. All of them have a number of characteristics in common. They are mammals, which means they are warm-blooded, breathe air with lungs, and give birth to young which the mother suckles with milk. Cetaceans are marine mammals, and are superbly adapted to spend their entire lives in water. Their bodies are long and streamlined. They have no hind legs, and their 'arms' are paddle-like pectoral flippers. Their horizontal tail flukes propel them powerfully through the water. They breathe through one or two blowholes, situated on the top of the head. And underneath their skin is a fat layer called blubber, which keeps them warm in chilly waters.

Cetaceans have many other special adaptations to help them cope in their often murky aquatic world. They have keen hearing and the ability to make sounds, even though they have no vocal chords. These sounds, which are varied and very complex in some species, are used for finding food, navigating, and communicating.

One of the most remarkable features of cetaceans is how they are equipped to eat. All whales, dolphins and porpoises can be divided into two main types: toothed whales or baleen whales.

Toothed whales, known as *odontocetes*, use their teeth to eat mainly fish and squid. Some killer whales feed on marine mammals. Toothed whales include the sperm whale, the killer whale, and all dolphins and porpoises.

Baleen whales, or *mysticetes*, have no teeth. Instead, their mouths act like giant kitchen strainers. Hundreds of long, stiff strips of baleen hang down from their upper jaws. Baleen is made of a substance similar to human fingernails. These baleen strips, or plates, overlap and their edges are lined with bristles like a fuzzy brush. Almost all of the largest cetaceans are baleen whales, yet most of them eat small fish and tiny shrimplike animals known as krill, which gather in huge swarms below the water surface. To feed, the whale takes in an enormous mouthful of food-rich seawater. Its huge tongue squeezes the water out through the baleen, trapping the food on the inside.

Not all baleen whales eat in exactly the same way. There are three types, or families, of baleen whale. The *Balaenidae*, or 'bucket-mouth' whales, are bulky, slow swimmers that feed by skimming back and forth through swarms of krill. Their mouths are huge — almost half their bodies — and their baleen plates can be nearly four metres long. An example is the northern right whale.

The speedsters of the baleen whales are the *Balaenopteridae*, also known as *rorquals*. These whales are long and sleek, and have a series of folds, or pleats, along their throats which expand like an accordian when the whale fills its mouth with water. Rorquals are 'gulpers' and often look like huge tadpoles when feeding. Included in this group are blue, humpback and minke whales.

Grieme Ellis

Krill: food for whales

The third family, *Eschrichtiidae*, has only one member, the Pacific gray whale. This whale can be called a 'sucker' feeder. Like a vacuum cleaner, it often scrapes along the ocean bottom, sucking up sand and mud and filtering out tiny marine animals through its baleen.

One easy way to tell toothed and baleen whales apart is to look at their blowholes. All toothed whales have a single blowhole. Baleen whales have two or paired blowholes.

Whale, dolphin or porpoise?

As long as humans have been studying and watching whales, there has been confusion over the common names we give them. For example, why is the largest member of the dolphin family called a killer *whale*? It's all a matter of size. Whales are *really* big, dolphins can be *pretty* big, and porpoises are *not so* big. Often, as in this booklet, the word 'whale' is used when talking about cetaceans in general.

Graeme Ellis

Killer Whale: whale or dolphin?

Whales and First Nations

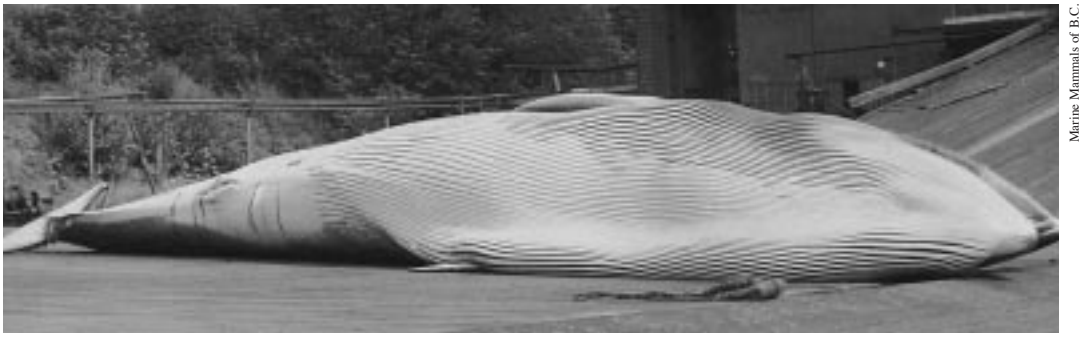
Whales have always been important to B.C.'s coastal First Nations. They viewed all whales with great respect, often believing they were the souls of ancestors. Whales play a part in many First Nations traditions and ceremonies. Killer whales in particular were believed to possess great powers, and were never to be harmed.

Graeme Ellis

Some whales were a source of food. Archaeologists at ancient village sites on B.C.'s coast have uncovered whale bones thousands of years old. Any coastal people who found a dead whale on a beach would claim it. But the Nuu-chah-nulth of western Vancouver Island were skilled whale hunters. Armed with wooden harpoons tipped with mussel shell blades, lines made of whale or seal sinew, and floats made of sealskin, these hardy people launched their small dugout canoes in search of passing humpback or gray whales. Practically the entire animal was eaten or used in some way.

Commercial whaling

The history of commercial whaling in B.C., as in other parts of the world, tells a sad tale. Commercial whaling began off the west coast of North America in the early 1800s, when sailing ships roamed in search of sperm and right whales. In the 1850s, shore-based whalers in California began killing gray and humpback whales during their annual migrations, and gray whales in their breeding lagoons. In B.C., a few small whaling companies hunted in Georgia Strait between 1866-73, taking mainly humpbacks. Whale products were in big demand around the world. Whale oil was used to fuel homes and industry, and to make soap, lipstick, candles, margarine and many other products. Whale baleen, mistakenly called whalebone, was used for umbrellas and ladies' corsets.



Marine Mammals of B.C.

An adult female fin whale at Coal Harbour whaling station.

In 1905, whaling entered its modern era. A new harpoon gun and faster, steam-powered chaser boats made it easy to capture even the swiftest whales. Six whaling stations opened for business on the B.C. coast. From each of these stations, a fleet of chaser boats would venture out to harpoon whales and tow them back for processing. By the late 1920s, these fleets faced heavy competition from foreign factory ships, which roamed international waters, processing whales on-board with alarming speed and efficiency. Whalers shifted from one species to another as each one was depleted. One by one, B.C.'s whaling stations closed down. Commercial whaling in B.C. ended in 1967.

Conservation and research

By the time Canada stopped all commercial whaling in 1972, large whales were threatened almost everywhere in the world. So few remained that it became too difficult and expensive for whalers to find them. While no whale has become extinct in modern times, some, such as the Pacific gray whale, came very close. Even today, the future of the northern right whale is uncertain. In 1982, the International Whaling Commission declared a worldwide ban, or moratorium, on all commercial whaling. This moratorium is still in effect.

Whales are now international symbols for wildlife conservation. Where whalers once hunted with harpoons, whalewatchers now hunt with cameras. In B.C., whalewatching has become a multimillion-dollar tourist industry, attracting thousands of visitors each year. Major whalewatching centres in B.C. include Tofino, Ucluelet, Victoria and the Johnstone Strait region off northeastern Vancouver Island.

A healthy future for whales is still not a sure thing. As human populations grow, so do the pressures we place on the oceans and the animals that live in them. We compete with whales for food, pollute the waters they live in with chemicals and noise, accidentally catch them in our fishing nets, and sometimes hit them with our ships.

It is hard to know how some of our activities affect whales. Industrial pollution is a good example. Everything in the ocean is food for something else. This is called a food web. As a dangerous chemical, or pollutant, travels up the food chain,

it becomes more concentrated, so that the animal at the top can get the biggest load. Toothed whales are particularly vulnerable because they are at the top of the food chain. Some pollutants collect in the blubber of toothed whales, where they stay until the whale uses up its fat, such as when it gives birth. Through her milk, a mother whale may pass a huge load of pollutants to her calf. We have no idea what this means for whales in the long-term.

To protect whales, we need to learn everything we can about them. Oddly enough, whaling has helped. Much of what we know about B.C.'s large whales came from a whaling station on northwest Vancouver Island. Biologists collected data on the species, size, sex, stomach contents, and location of each whale processed.

We no longer have to kill or capture whales to study them. In the last 25 years, scientists working in B.C. waters and elsewhere have developed special photo identification, tagging and tracking techniques to learn about the everyday lives of whales.

This booklet is a guide to the whales, dolphins and porpoises of the B.C. coast. Special attention is given to the seven species most often seen. It also answers some of the most commonly asked questions about whales. This booklet does not tell you everything that is known about whales, dolphins and porpoises. If you would like to learn more about them, it is recommended *that you consult your nearest library. To help you, this booklet includes a suggested reading list and web site list.*

Graeme Ellis

Featured species

Gray whale

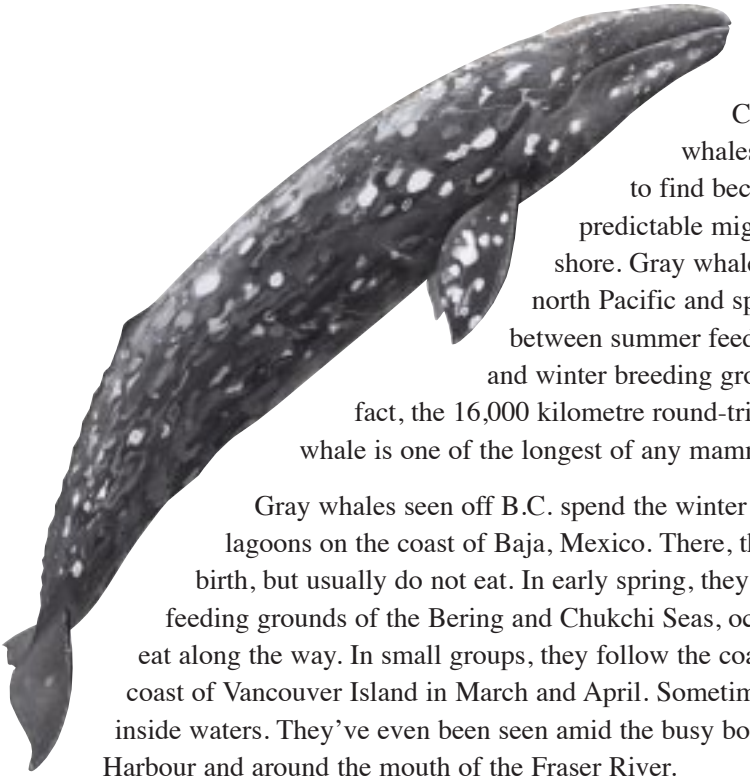
Eschrichtius robustus

The Pacific gray whale is the comeback champion of the great whales. Twice in the last 150 years it has come dangerously close to extinction, yet today it is as abundant as ever off the west coast of North America.

Description

The gray whale looks quite different from any other whale. Its body is robust and tube-shaped. It is gray in colour, but is covered with whitish blotches, giving it a distinct mottled appearance. Its narrow, triangular head is slightly arched, or bowed, on the top and the long mouthline curves downward. Gray whales have no dorsal fins. Instead they have a low hump followed by a series of small knobs running along their back. These knobs are very easy to see just before the whale dives and are one of the best ways to identify a gray whale.

Fully grown, a gray whale can be 14 metres long and weigh 35 tonnes. Its blow, or spout, is low and bushy; some people describe it as heart-shaped. The gray whale's skin, particularly around the head, flippers and tail, is covered with clusters of round, white barnacles. These harmless hitchhikers are joined for the ride by thousands of orange or yellow whale lice, small crab-like animals about the size of a large thumbnail. The lice scurry among the barnacles, eating dead skin shed by their whale host. Up to 100,000 lice have been found on a single whale!



Range

Compared to most other whales, the gray whale is easy to find because it follows a very predictable migration route close to shore. Gray whales are only found in the north Pacific and spend their lives travelling between summer feeding grounds in the north and winter breeding grounds in the south. In fact, the 16,000 kilometre round-trip migration of the gray whale is one of the longest of any mammal on earth.

Gray whales seen off B.C. spend the winter in or near one of several lagoons on the coast of Baja, Mexico. There, the adults mate or give birth, but usually do not eat. In early spring, they swim north to the rich feeding grounds of the Bering and Chukchi Seas, occasionally stopping to eat along the way. In small groups, they follow the coastline, passing the west coast of Vancouver Island in March and April. Sometimes, a few stray into inside waters. They've even been seen amid the busy boat traffic of Vancouver Harbour and around the mouth of the Fraser River.

Some gray whales are known to stay in B.C. coastal waters for the entire summer, poking about in shallow sandy bays and along stretches of exposed rocky coast. These 'resident' whales join up with the southern migration, sometime between November and January. Southbound whales are not easy to see, since they usually travel more quickly, and further offshore, than in the spring.

John Ford

Whale lice

Behaviour

When migrating or feeding, gray whales are not as active on the surface as some other whales. Usually, they blow three to five times and then lift their flukes and dive for five minutes or more. In the breeding lagoons, they are more playful, occasionally poking their heads out of the water, or leaping in a full breach. Mating can be very lively, involving several whales at a time. Newborn calves are about 5 metres long and weigh up to 900 kilograms. Female gray whales are fiercely protective of their young, a trait which led whalers to nickname them 'devilfish.'

John Ford

Gray whales use their baleen to filter food from the water.

Gray whales are baleen whales. They feed in a number of ways, but are specially suited for bottom-feeding. The whale dives to the ocean floor, turns on its side, and sucks up a mouthful of sand and mud. With its short baleen, it filters out and eats tiny crab-like animals called amphipods, or worms that live in the muck. As the whale feeds, it shoots out huge plumes of mud, easily seen from boats and aircraft. Because the baleen is usually more worn down on the right side it appears that most gray whales eat “right-handed”!

Status

The gray whale is one of the world’s wildlife success stories. In the 19th and early 20th centuries, commercial whalers slaughtered them in the thousands, both on their migration and in their breeding lagoons. Before whaling, there were an estimated 24,000 in the eastern North Pacific. By early this century, there may have been as few as 2,000. Since it was protected in 1946, the gray whale has recovered to an estimated 26,000 animals.

Because they can be seen from shore as well as boats, gray whales are probably the most ‘watched’ whale on the Pacific coast of North America. After a remarkable recovery from the brink of extinction, the gray whale is now a sure sign of spring for winter-weary British Columbians.

Humpback whale

Megaptera novaeangeliae

Humpback whales are the acrobats and songsters of the great whales. A humpback leaping clear of the water in a full breach is a truly spectacular sight, and its haunting song is one of the most complex in the animal kingdom.

The humpback whale is the fifth largest of all whales. Fully-grown, it can be 16 metres long and weigh up to 40 tonnes. There are three good ways to identify a humpback. First of all, most of its chunky body is dark gray to black, except for two enormous, white and black pectoral flippers. No other whale has flippers like these, which can be almost 5 metres long. Second, as the whale begins to dive, it bends its back, showing a rounded hump underneath its short, nubby dorsal fin. This profile is how the humpback whale got its name. And third, as the whale slides beneath the surface, you may see the underside of its huge tail flukes. The natural black and white patterns and scars seen there, unique to humpbacks, are used by researchers to identify individual whales. Like human fingerprints, no two humpback tails are the same.

A close-up view of a humpback whale surprises many people. The head is large and, when seen from above, looks alligator-shaped. On top are small knobs that look like bolts on a piece of machinery. The mouthline runs high along the length of the head, dropping sharply below the eyes. The tip of the lower jaw has a fleshy bump, which is often covered with barnacles. The humpback has long folds, or pleats, running from its throat down its belly which expand when it is feeding. The humpback's blow, or spout, is balloon-shaped and can be as high as 3 metres.

Range

Humpback whales are found in all the world's oceans. Like many baleen whales, they are migrants, and follow predictable routes according to the season. In the north Pacific, humpbacks travel from their winter breeding grounds in the south to summer feeding grounds in the north. Humpbacks seen off B.C. spend their winters in the coastal waters of either Hawaii or Baja, Mexico. They do not eat there. Winter is the time for mating, and giving birth. In early spring, the whales head north in small groups to eat. Many go to the coastal inlets of southeast Alaska, and to the Bering and southern Chukchi Seas. Some humpbacks spend their summers off B.C.

Behaviour

Because of its many surface antics, the humpback whale is one of the most interesting whales to watch. Humpbacks like to breach, slap their tails, and wave their long flippers in the air. They are very lively in the winter breeding grounds, where males push and shove each other to get near a female. These wrestling matches can get so rough that the dorsal fins and head knobs of competing males can get ragged and bloody. One year later, females return to give birth to their 5-metre, 2-tonne calves.

It is on the breeding grounds that humpback whales sing their songs — an eerie blend of grunts, whistles and whines. Only the males sing, usually while hanging head-down some 20 metres below the surface. Why he sings is a mystery. How he knows what to sing is an even bigger puzzle. The song changes from season to season, yet all male humpbacks on each of the breeding grounds, sing the same song.

The humpback is a rorqual baleen whale. It eats by gulping in a huge mouthful of water and food. To contain the water, its throat expands like a pelican's pouch, until its massive tongue squeezes the water out through the baleen. Its favourite foods are small schooling fish and krill. The humpback uses a variety of feeding techniques. Perhaps the most unusual is called bubble-netting. Several whales circle a school of fish from below and blow bubbles as they spiral toward the surface. The fish are frightened into a tight ball, and the whales surface, mouths wide open, to swallow them.

Status

Worldwide, humpback whales are endangered. In the north Pacific, they were heavily hunted by whalers for their oil and baleen. Where there were once perhaps 15,000, today there are an estimated 6,000 to 8,000. Even though humpbacks have been fully protected since 1965, their numbers are increasing very slowly.

Humpbacks were once quite plentiful on the B.C. coast, even in the inside waters of the Strait of Georgia. Several individuals have been seen in these waters in recent years. This is a hopeful sign that one day, the humpback whale may again be a common sight on the B.C. coast.

Killer whale

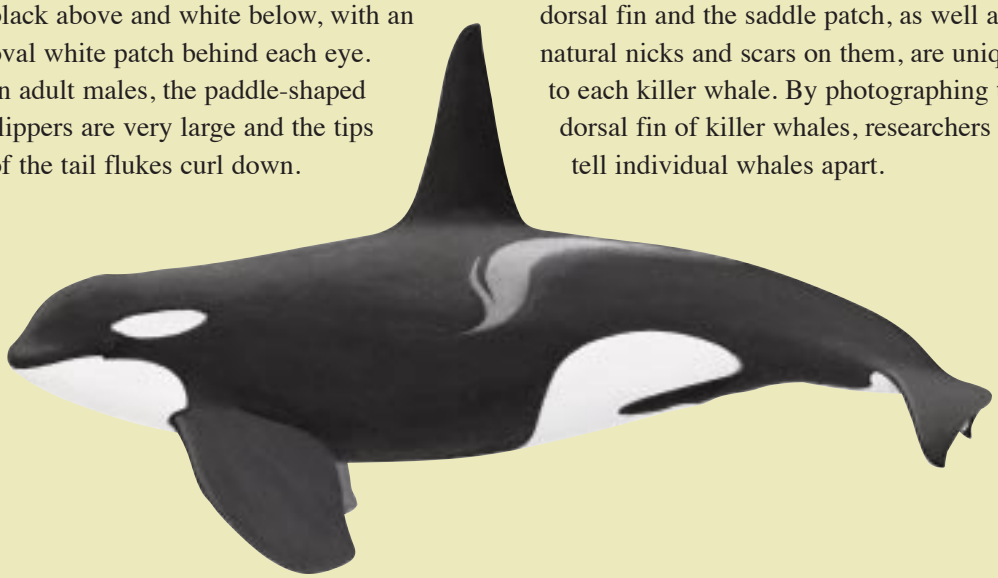
Orcinus orca

Up until 25 years ago, the killer whale was generally considered a bloodthirsty pest. Today, thanks in part to discoveries made in B.C., the killer whale is admired as a symbol of Canada's wild and rugged west coast.

Description

The killer whale, or orca, is the largest member of the dolphin family. Its size, striking black and white colouring, and tall dorsal fin are unmistakable. Males reach lengths of 8 or 9 metres and weigh up to 5 tonnes. Females are smaller at 7 metres and 4 tonnes. Killer whales are mainly black above and white below, with an oval white patch behind each eye. In adult males, the paddle-shaped flippers are very large and the tips of the tail flukes curl down.

The first sight of a killer whale is usually its dorsal fin. In fully grown males, this fin sticks straight up, often as high as 1.8 metres. In females and young whales, the fin is curved and less than one metre high. Behind every dorsal fin there is a gray area called a saddle patch. The shape of the dorsal fin and the saddle patch, as well as natural nicks and scars on them, are unique to each killer whale. By photographing the dorsal fin of killer whales, researchers can tell individual whales apart.



Range

Killer whales are found in all the world's oceans, from polar to tropical seas. They seem to be most common in cold water regions, such as Iceland, Norway, Japan, Antarctica and the northeastern Pacific coast from Washington State to the Bering Sea.

British Columbia is one of the best places in the world to see wild killer whales. Many people are surprised to learn that there are two very different types, or races, of killer whale in B.C. They look very similar, but they act very differently.

Resident killer whales eat mainly fish. Their dorsal fins tend to be rounded at the top. They live in family groups of 5 to 50 whales, called pods. There are 19 pods of *resident* killer whales in B.C., adding up to about 300 animals. In the summer,

Graeme Ellis

residents are often seen in certain areas. The northern community of *resident* killer whales lives off northern Vancouver Island and the mainland coast as far north as southeast Alaska. Northern *residents* often visit Johnstone Strait off northeastern Vancouver Island. The southern community of *residents* is found off southern Vancouver Island. Haro Strait and the Strait of Juan de Fuca are good places to view them. Northern and southern residents are sometimes seen in winter, but can vanish for months at a time.

Transient killer whales eat marine mammals, such as seals, sea lions and porpoises. Their dorsal fins are more pointed. They usually travel in small groups of two to four animals who may or may not be related to each other. At least 218 *transient* killer whales are known to roam the coastal waters of B.C. and southeast Alaska. *Transient* killer whales are not predictable; they can be seen anywhere, anytime. *Transient* and *resident* killer whales do not mix with each other.

What may be a third type of killer whale has been discovered in recent years. Researchers call them *offshore* killer whales, but since they have not been seen very often, very little is known about them. They are unlike *residents* and *transients* in a number of ways. There are slight physical differences, they usually travel in groups of 25 or more, they are seldom seen in protected coastal waters, and their vocalizations are unlike those of *residents* or *transients*. So far, most *offshore* killer whales have been seen near the Queen Charlotte Islands. But they can turn up anywhere. In 1992, a group of 65 *offshores* surprised researchers and whalewatchers near Victoria.

Behaviour

Killer whales are one of the most exciting whales to watch. Whether they are travelling, resting, hunting, beach rubbing, or playing with each other, there is always plenty to see.

B.C.'s *resident* killer whales are especially interesting because we know so much about them. In 1972, researchers began taking pictures of individual whales. From these photos, and by watching who travelled with whom, they learned that family life centres around females, and that a mother and her calves stay together for life. Even when they're fully grown, sons and daughters never stray far from their mothers. Some killer whales, particularly females, can live as long as humans. Using all this information, researchers have put together family trees for all of B.C.'s *resident* killer whales. Family members within a pod are each identified by a letter and a number. This is very handy for researchers and whale-watchers. By identifying one whale in a group, they can often tell which family they are looking at.

Sound is very important to killer whales. Using air trapped in their blowholes, they produce high-pitched squeals, squawks and screams that often sound like a squeaky door hinge. Each family group of whales has its own set of unique sounds, or discrete calls, which together form its dialect. Some dialects are so distinctive that even an inexperienced listener can tell them apart. Researchers believe that the more similar the dialects between two pods, the closer they are related.

Killer whales also make clicking sounds which they bounce off objects in the water. This is a type of natural sonar called echo-location and is very useful when searching for food or navigating in murky water.

Little is known about mating behaviour in wild killer whales. Females usually have their first calf at age 14 or 15 after a 17-month pregnancy — one of the longest of all whales. Newborn calves are 2.5 metres long and 200 kg, and drink their mother's fat-rich milk for up to a year.

Graeme Ellis

Status

Killer whales were once hated in B.C. They were considered ferocious and a nuisance. Fishermen complained that they were eating all the salmon, and often shot them on sight. In the late 1960s and early 1970s, a number of killer whales were caught alive in B.C. and Washington State waters for display in aquariums. Millions of people were able to see for themselves that killer whales did not match their fearsome reputation.

Today, wild killer whales are the star attraction of B.C.'s growing whalewatching industry. Every year, thousands of tourists take whalewatching trips into prime killer whale areas such as Johnstone Strait off northeastern Vancouver Island and Haro Strait near Victoria. Killer whales can also be seen from land anywhere along the coast. In 1994, six killer whales even came into the busy harbour of the city of Vancouver!

Just as we begin to understand the natural history of B.C.'s killer whales, they face new threats from human activity. Pollution, global overfishing, and increasing boat traffic are all ongoing concerns. Continuing long-term study will lead to a better understanding of B.C.'s killer whales and their habitat needs.

Minke whale

Balaenoptera acutorostrata

The minke whale is the smallest and most common of the baleen whales. Its shy behaviour makes it a challenge for even the most experienced whalewatcher to spot.

Description

The minke whale (pronounced '*MINK-ee'*) is the blue whale's smallest relative. Fully grown, the minke whale can be 10 metres long and weigh 8 tonnes. The minke's smooth body is shaped like a torpedo, and tapers at both ends. Its head is very pointed, which is why it used to be called 'the little piked whale.' Like all rorqual whales, its throat is lined with pleats which expand when feeding. Minkes are dark gray on top and white on their bellies. Sometimes they have faint, gray swirls on their flanks, just behind the flippers. Their blow, or spout, is low and very hard to see.

There are two special features to look for when trying to identify a minke whale. One is the dorsal fin, which is small and sharply curved. It is about two-thirds of the way along the back, and is usually seen very briefly just as the whale blows. But the surest way to identify a minke is by catching a glimpse of its pectoral flippers. There is a distinct white band on each one. No other whale this size has such markings.

Range

The minke whale is found in all the world's oceans, from the tropics to the polar seas, in coastal and offshore areas. Very little is known about the seasonal movements of minkes, but it is believed that in the North Pacific, they generally shift northwards in the summer and southwards in the winter. They are found as far north as the Bering and Chukchi Seas.

Minkes are seen off B.C. throughout the year, but most often in the summer months. They sometimes feed or travel quite close to shore. Long-term studies in the waters off southern Vancouver Island have shown that some minkes return to the same feeding spots year after year. Finding this out was not easy. Researchers had to take thousands of photographs of these elusive whales before they could tell individuals apart by slight differences in dorsal fin shape, body colour and scars.

Behaviour

Very little is known about the social life of minke whales. No-one has found a special breeding ground, if one exists. It is thought that births take place in winter, and that calves stay with their mothers for only four to six months. That may be one reason why minkes seen off B.C. in the summer are usually alone, although it seems that minkes are very solitary whales. Like all rorqual whales, minkes are fast swimmers. They are difficult to follow, because they do not breathe regularly and often change direction. It is not unusual for one to vanish as if by magic!

Minke whales eat by either gulping or skimming. They seek out swarms of krill and small schooling fish near the surface, such as herring. They fill their expandable

mouths with water and filter the food through the baleen. Sometimes, a minke whale will lunge feed by shooting straight out of the water, its mouth wide open. Minke whales are often seen feeding with noisy flocks of seabirds.

Graeme Ellis

Status

Because of their small size, minke whales did not interest whalers until blue, fin, sei and sperm whales became more difficult to find. Once these larger whales were protected, the minke became a main target. Only two minkes were reported in catches from B.C.'s shore-based whaling operations. Today, the world population of minkes is estimated to be in the hundreds of thousands, although in some regions their numbers are low. In B.C. they have always been considered fairly common, but not abundant.

Pacific white-sided dolphin

Lagenorhynchus obliquidens

Also known as Lags from their scientific name, these high-spirited dolphins are the most acrobatic of B.C.'s commonly seen cetaceans.

Description

Sleek, smartly marked and tirelessly playful, the Pacific white-sided dolphin can be easy to identify. That's because it throws itself out of the water so often that it leaves little doubt about its identity. The body is black on the back, with striking light gray flanks and a pearl-white belly. Two gray stripes run along the entire length of the back. These markings, which some people liken to suspenders, are easily seen from above when the dolphin is riding bow waves. The dolphin has a short snout, or beak, and long curved pectoral flippers. Its black and grey dorsal fin is tall and curved. When fully grown, the Pacific white-sided dolphin is about 2.5 metres long and weighs up to 180 kilograms.

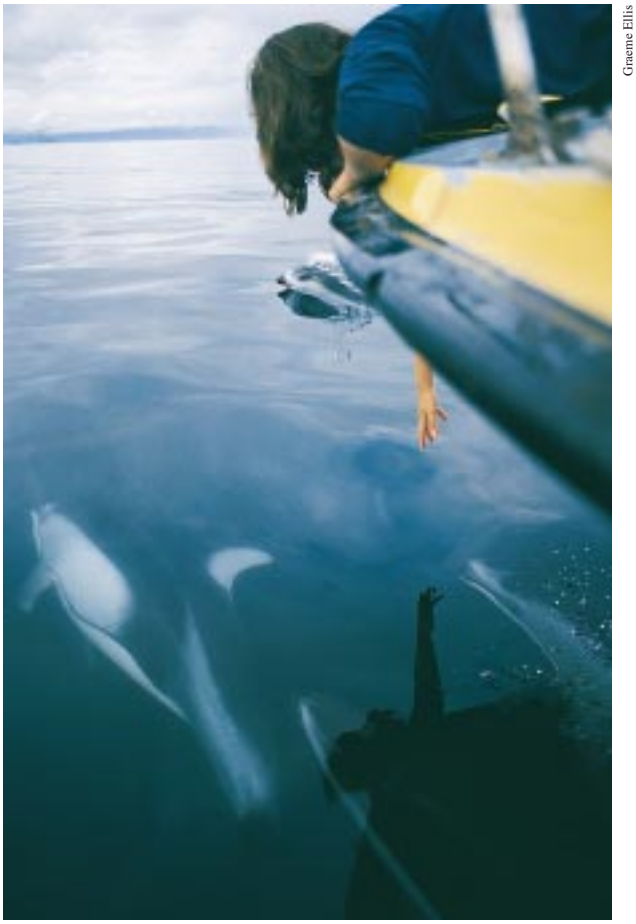
Range

Pacific white-sided dolphins are perhaps the most abundant dolphin in the North Pacific. They are found from the southern tip of Baja, Mexico as far north as the Aleutian Islands of Alaska. They are seen year-round in some areas. It was once thought that Pacific white-sided dolphins stayed mainly offshore, but in recent years, large groups have been seen more and more in protected waters such as Johnstone and Queen Charlotte Straits off northeastern Vancouver Island.

Behaviour

Seeing Pacific white-sided dolphins in the wild can put a smile on anyone's face. They are very social, normally travelling in groups of 20 to several hundred. In one group seen far offshore there were an estimated 6,000 dolphins! Large groups are often noticeable from quite far away. As they race through the water, their dorsal fins kick up a splash called a rooster tail. Pacific white-sided dolphins are eager surfers and seldom pass up a chance to ride a bow or stern wave. They have even been seen to abandon a meal to race over to a passing boat. Fast, powerful swimmers, they cartwheel and somersault with almost reckless abandon. Once, one accidentally leapt 3 metres onto the deck of a moving research ship!

Pacific white-sided dolphins not only enjoy each other's company, they also



Graeme Ellis

like to travel with other types of whales and dolphins. They have been seen with northern right whale dolphins, Risso's dolphins, and humpback and gray whales, among others. Even seals and sea lions can be playmates.

Very little is known about the life history of the Pacific white-sided dolphin. Studies are now underway to learn more about their biology. It is likely that calves are born in summer or early fall. Newborns are about 95 centimetres long. Pacific white-sided dolphins are very 'talkative' animals. Using air trapped in their blowholes, they make a variety of very high-pitched squeals, whistles and whines. These noises are most likely used to communicate with each other.

Pacific white-sided dolphins also use clicking sounds, known as echolocation, to find their way around and to catch their food. They eat squid and small schooling fish, such as lanternfish, herring, hake, and anchovies. They use their small, pointed teeth to capture their prey, which they usually swallow whole.

Status

The Pacific white-sided dolphin is widespread throughout its range and does not appear to be at risk. Recent surveys off the coast of Washington State and Oregon estimated that there were about 38,000 in those waters. It is unknown how many there are in B.C. There are some signs that Pacific white-sided dolphins are becoming more common in inshore waters.

Dall's porpoise

Phocoenoides dalli

The Dall's porpoise is a speed demon, well-known to mariners on the British Columbia coast for its habit of riding the bow waves of passing boats.

Description

The Dall's porpoise looks and acts like a little black and white torpedo. Fully grown, it is only slightly more than 2 metres long, but it is stocky and powerfully built, weighing about 220 kilograms. Its small head and short flippers make its body look even more torpedo-like. Its mouth is small and narrow, and like all porpoises, it does not have much of a snout, or beak.

Striking black and white colouring makes the Dall's porpoise easy to recognize at close range. The body is shiny black except for a large white patch on the flanks and belly. The outer edges of the tail look like they've been dipped in white or gray paint. When seen from a distance, the Dall's porpoise can be mistaken for its smaller cousin, the harbour porpoise. Their dorsal fins are both triangular, but the fin of the Dall's is often frosted with white or grey on the tip. Sometimes, the Dall's porpoise is even confused with its much larger, black and white relative, the killer whale. Many boaters unfamiliar with Dall's porpoises have reported a group of "baby killer whales" riding their bow wave.

Graeme Ellis

Range

Dall's porpoises are likely the most common small cetacean in the north Pacific. They can be seen year-round in coastal and offshore waters all along the B.C. coast, particularly where there are deep underwater channels and canyons. Boaters and ferry passengers often see small groups of Dall's porpoises in the Straits of Georgia and Juan de Fuca, as well as Johnstone and Queen Charlotte Straits off northeastern Vancouver Island.

Behaviour

The Dall's porpoise is one of the fastest swimmers on the B.C. coast. Often, the first view of a Dall's is a v-shaped splash, made by its dorsal fin as it rockets through the water. Because of its shape, this splash is called a rooster tail. Dall's are best known for riding the bow waves of boats, darting back and forth with lightning speed just below the surface. Despite their high energy, they almost never leap clear of the

water. When they do travel slower, Dall's porpoises can be hard to spot. A quick glimpse of their dorsal fins and small, black backs is usually the only sign they are there.

Dall's porpoises most often travel in groups of five or less. Births may take place at any time of year, but seem to peak in spring and summer. Calves are about 100 centimetres at birth and may stay with their mothers for up to two years. Very little else is known about the social life of Dall's porpoises. Identifying individuals using photography is very difficult when the subject is so fast.

The Dall's porpoise likes to eat squid and small schooling fish, such as herring, capelin and eulachon. It uses it small teeth to capture its prey, which it usually swallows whole.

Status

The Dall's porpoise is widely distributed in the north Pacific, where it is estimated there are 1.4 to 2.8 million. It is quite common in B.C. waters. Occasionally, Dall's porpoises are accidentally caught in fishing nets. And, because they live in coastal waters, pollution is a concern. Fortunately, boat traffic seems to be an attraction rather than an annoyance to this lively and entertaining porpoise.

Harbour porpoise

Phocoena phocoena

Nicknamed the 'puffing pig' in eastern Canada, the harbour porpoise is British Columbia's smallest cetacean. Living in the same waters as the well-known killer whale and the lively Dall's porpoise, the harbour porpoise is often overlooked.

Description

It is quite likely that B.C. boaters pass near many harbour porpoises without even knowing they're there. That's because the harbour porpoise blends in very well with its marine environment. It is dark brown or gray in colour on its back, paler on its belly. Its body is chunky, with a small head, tiny flippers and a low, triangular dorsal fin. Its mouthline is short and straight, tilting slightly upwards. Like all porpoises, it does not have much of a snout, or beak. Fully grown, harbour porpoises are about 1.8 metres long and weigh about 90 kilograms.

Range

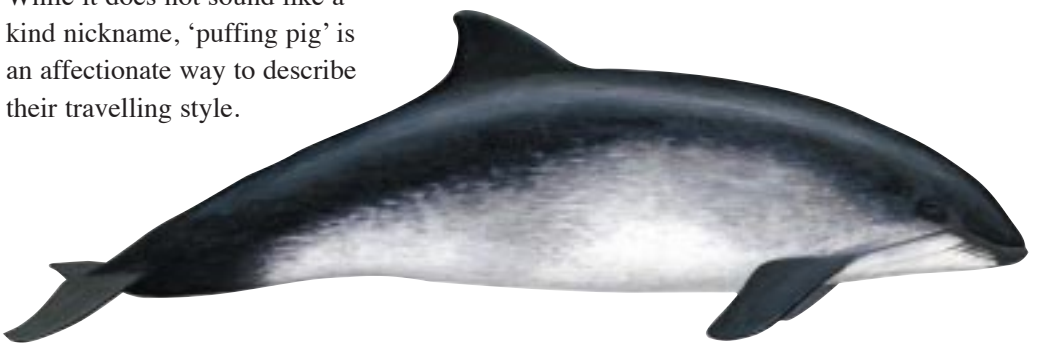
Harbour porpoises are found in the colder oceans of the northern hemisphere. They are common year-round in coastal areas between central California and southern Alaska. As their name suggests, they are often seen in shallow inshore waters such as bays, river mouths, and harbours.

Behaviour

Appearance is not the only reason harbour porpoises are hard to see. They are shy and normally try to avoid boats. They almost never ride the bow waves of boats and rarely, if ever, leap out of the water. They can swim at speeds of up to 20 km/h, but usually they travel quite slowly. On rough days they are almost impossible to spot. In calmer waters, the only signs they are there are their small dorsal fins and the sharp puffing sound of their breath. While it does not sound like a kind nickname, 'puffing pig' is an affectionate way to describe their travelling style.

Harbour porpoises are usually seen alone or in pairs. Occasionally, they may gather in groups of up to 20, but this is rare. In B.C., most calves are born between May and September. They are about 90 centimetres long at birth and likely stay with their mothers for at least six months.

The harbour porpoise eats squid and a wide variety of small fish, such as herring. It uses its small, spade-shaped teeth to capture its prey, which it usually swallows whole.



Status

Although the world population of harbour porpoises is unknown, their numbers are declining in some regions. They are listed as endangered in eastern Canada. There is concern that their numbers are also falling in B.C. but it is not known how many there are.

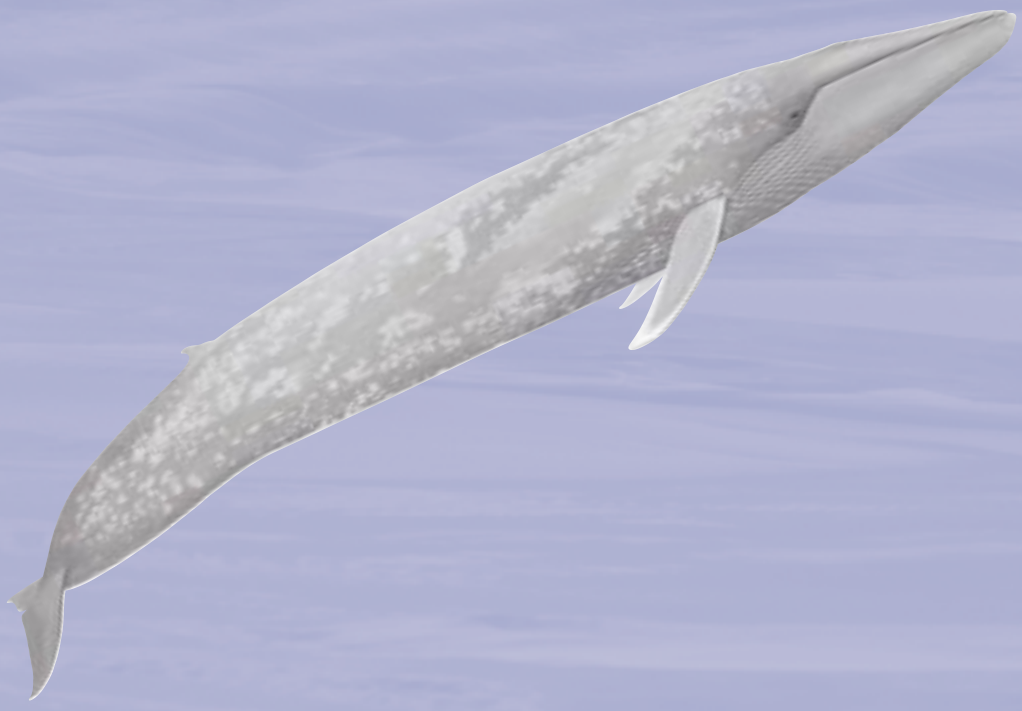
Because they prefer shallow coastal areas, harbour porpoises may be particularly sensitive to human activity. They sometimes become entangled in fishing nets and drown. Others may be driven out of their normal range by heavy boat traffic. And because harbour porpoises are high in the coastal food chain, their tissues can store high amounts of dangerous pollutants such as PCBs and DDT.

Other species

Blue whale

Balaenoptera musculus

The blue whale is the largest animal on earth. Not even the long-dead dinosaurs can match the size of the blue whale. Its slim, mottled, blue-gray body can be as long as 30 metres. It has a small curved dorsal fin placed far along its back. The whale is so big that its head disappears long before the dorsal fin and the huge flukes are seen. Blue whales were heavily hunted by whalers everywhere, including B.C. It is believed there were once about 228,000 blue whales worldwide. An estimated 14,000 survive today, several thousand of them in the north Pacific. Blue whales are now a rare sight in B.C. waters. They usually travel alone or in small groups, and because they prefer the open ocean, are unlikely to be seen close to the coast.



Fin whale

Balaenoptera physalus

The fin whale is the second largest whale in the world and can be up to 24 metres long. A ridge runs along the fin whale's backbone, which is why in some parts of the world it is nicknamed the 'razorback.' Its curved dorsal fin is about two-thirds of the way along its

back. An unusual feature of this whale is that the lower right side of its head is white, while the entire left side is dark gray. Fin whales may once have been the most abundant baleen whale in the world, and were a favourite target of whalers. There are now an estimated 120,000 worldwide, including about 15,000 in the North Pacific. Fin whales were heavily hunted by B.C. whalers, which means they were once quite common in B.C. waters. Today they are rarely seen. Fin whales normally travel alone or in small groups far offshore.

Graeme Ellis

A fin whale skeleton

Sei whale

Balaenoptera borealis

At 18 metres in length, the sei (pronounced *'say'*) whale is in many ways a smaller version of the fin whale. The sei's dorsal fin is slightly taller and its body is darker gray, sometimes with very small gray or white scars. It also doesn't have the fin whale's strange head

colouring. Whalers thought the sei was a poor catch until they ran out of blue and fin whales. Then the sei was heavily hunted, including off the B.C. coast. In the 1960s, more than half of the whales caught in B.C. were sei whales. There were perhaps about 256,000 sei whales in the world before whaling. There are now an estimated 54,000, including 14,000 throughout the North Pacific. In B.C., sei whales rarely come near the coast, but are sometimes found alone or in small groups well offshore.

Northern right whale

Eubalaena glacialis

This whale is on the edge of extinction. Slow moving and so rich in oil it would float when dead, it was the favourite target of whalers and the "right" whale to hunt. The right whale is very unusual to look at. Its huge head takes up about a quarter of the length of its chunky, black body, which can be as long as 18 metres. On top of the head are crusty lumps called callosities, the largest of which is called the bonnet. Right whales have no dorsal fin. It is believed there were once more than 100,000 right whales in the world's oceans. Now there are only an estimated 4,000. No-one knows how many there are in the North Pacific, but there may be as few as 100. Right whales have been protected for many years, yet have shown no signs of increasing in the North Pacific. It is not known why. Right whales are extremely rare in B.C. waters and any sighting is of great interest to researchers.

Sperm whale

Physeter macrocephalus

The sperm whale is the largest of the toothed whales, reaching lengths of 18 metres. It is dark brownish gray in colour, with skin that looks wrinkled like a prune. It has a huge, square head and instead of a dorsal fin it has a rounded hump, followed by a row of knuckle-

like bumps. Because its single blowhole is at the front of the head on the left side, its blow shoots forward. The sperm whale got its name from an oil-like wax in its head, called spermaceti, which was prized by whalers. It was hunted all over the world, including B.C., where more than 5,000 were caught between 1905 and 1967. Today, about one million are believed to roam the north Pacific. Sperm whales are very social and may be seen in groups of 15 to 30 animals. They prefer deep water ocean, and are sometimes seen off the west coast of the Queen Charlotte Islands.

False killer whale

Pseudorca crassidens

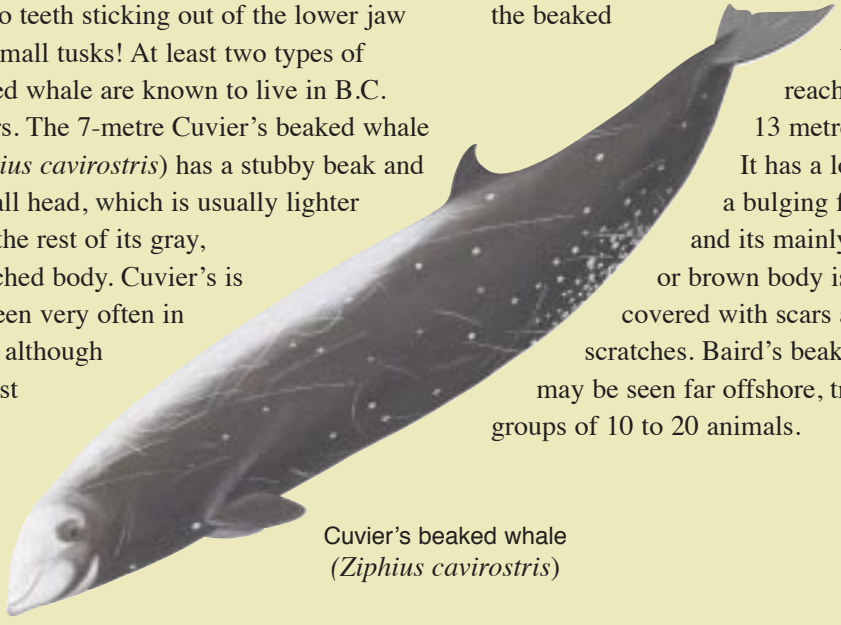
This whale's name is misleading, because it really doesn't look much like a killer whale. Its slender body is all black and can be up to 6 metres long. It has a small, rounded head and a curved dorsal fin. Its flippers are long and slightly bent, looking a bit like the shape of

an ‘S’. False killer whales are usually found in the warmer oceans of the world, but have been seen as far north as Alaska. In the southern part of their range they may travel in groups of more than 500 animals. False killer whales are not common in B.C., but a few individuals have been seen near the coast in recent years. Many of these sightings could in fact be the same whale, because it has a strange habit of entering harbours and following boats. One of these was a Vancouver harbour Seabus, which the whale followed back and forth for several days.

Beaked whales

Named for their long snouts, beaked whales live in the open ocean and are hardly ever seen close to the B.C. shoreline. All beaked whales have a single crescent-shaped blowhole, a curved dorsal fin set quite far along the back, small flippers, and two creases running down the throat. Perhaps the strangest thing about beaked whales are their teeth. Adult males, and the females in some species, have one or two teeth sticking out of the lower jaw like small tusks! At least two types of beaked whale are known to live in B.C. waters. The 7-metre Cuvier’s beaked whale *(Ziphius cavirostris)* has a stubby beak and a small head, which is usually lighter than the rest of its gray, scratched body. Cuvier’s is not seen very often in B.C., although at least 10 strandings have been recorded. The Baird’s beaked whale (*Berardius bairdii*) is the largest of the beaked whales, reaching nearly 13 metres in length. It has a long beak and a bulging forehead, and its mainly dark gray or brown body is often covered with scars and scratches. Baird’s beaked whales may be seen far offshore, travelling in groups of 10 to 20 animals.

Baird’s beaked whale
(*Berardius bairdii*)



Cuvier’s beaked whale
(Ziphius cavirostris)

Short-finned pilot whale

Globicephala macrorhynchus

This whale, along with its close relative, the long-finned pilot whale, is well-known around the world for stranding on beaches in large numbers. The short-finned pilot whale can reach a length of 5.4 metres, and is all black except for a grayish area behind its broad, curved

dorsal fin. Its head is very rounded.

Short-finned pilot whales are found throughout the warmer waters of the north Pacific, but can go as far north as southeast Alaska. They are very social whales and usually travel in groups of a few to several hundred. They are rare visitors to B.C. waters and may be seen with other cetaceans, such as northern right whale dolphins and Pacific white-sided dolphins.

Risso's dolphin

Grampus griseus

This large dolphin can be up to 4 metres long. Its stocky body is light gray and is covered with scratches and scars. Its flippers, flukes and tall, curved dorsal fin are all a darker colour. Its head is very rounded, with no noticeable beak. Risso's dolphins are found in warmer seas

around the world, and prefer offshore waters. One Risso's dolphin, known as "Pelorus Jack," was famous for escorting ships into New Zealand's Admiralty Bay over a period of 17 years! Risso's are very social dolphins. They usually travel in groups of less than 50, although one sighting off Washington State was made up of 2,000 animals. Risso's are not common in B.C. and are known from only a few sightings and strandings.

Northern right whale dolphin

Lissodelphis borealis

This speedster is the only dolphin in the north Pacific that doesn't have a dorsal fin. Its name refers to the right whale, which also lacks a dorsal fin. Northern right whale dolphins have long, slender bodies up to 3 metres long. They are mainly black, with a large white patch on their bellies and a small white splotch near the tip of their lower jaws. They are open ocean dolphins, and can be found from Baja, Mexico to Alaska. They tend to travel in groups of several hundred, although large herds of up to 3,000 have been seen. Very little is known about the biology of this frisky dolphin, which is often seen in the company of other cetaceans. In 1994, a small group of northern right whale dolphins was spotted with some Pacific white-sided dolphins more than 20 kilometres offshore from Tofino.

Popular questions

What are the biggest and smallest whales in the world?

The largest whale by far is the blue whale, which is also the biggest animal that has ever lived, including the dinosaurs. Blue whales in Antarctica are generally bigger than those in northern seas, reaching up to 30 metres and 160 tonnes. In other words, one whale can weigh about the same as 24 elephants! The smallest cetaceans are some of the coastal porpoises, which are rarely more than 2 metres and 45 kilograms.

How fast can whales swim?

Some dolphins and porpoises have been measured at speeds of more than 40 km/h over short distances. They may go even faster when pushed by the bow wave of a boat. Some of the large baleen whales aren't exactly slowpokes either. Rorquals such as blue and sei whales can reach speeds of 30-35 km/h.

Graeme Ellis

How does a whale breathe?

A whale breathes through one or two blowholes on the top of its head. When the whale is diving, a special structure known as a nasal plug stops water from coming into the blowhole. When the whale comes to the surface, muscles

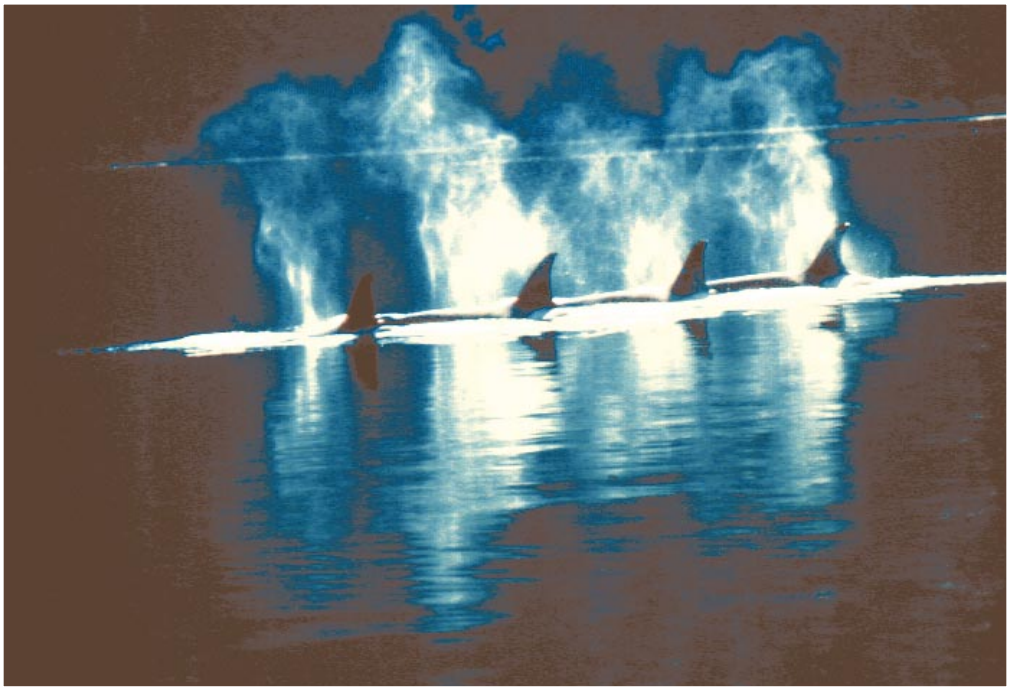
around the blowhole contract to open the nasal plug. The whale blows out old air and breathes in fresh air very quickly. The breath of a humpback whale, for example, can take only a few seconds. To do this, the whale blasts the old air out at more than 480 km/h! When we breathe, we usually replace only 25 per cent of the air in our lungs. But we don't live in water. To get what they need, whales have to replace up to 90 per cent of their air supply with each breath.

What causes the "blow" of a whale?

Some people think the blow is caused by water from around the blowhole being forced into the air. It may be a bit more complicated than that. When warm air shoots out of the blowhole, it cools as it comes into contact with the outside air. This causes moisture droplets, or condensation, that we see as spray. It is also believed that the breath carries secretions from the whale's respiratory tract. Whatever the explanation, there is nothing quite like the ripe and fishy smell of a whale's breath!

How deep can whales dive?

The record for deep diving in whales belongs to the sperm whale as it searches for squid and deep water fish. Sperm whales have been found tangled in undersea cables at depths of 1,000 metres, and recorded by sonar at 2,000 metres. They may even go as deep as 3,000 metres. Sperm whale dives can last an hour or more, but another open ocean species, the bottlenose whale, is known to dive for up to two hours at a time.



Graeme Ellis

How do whales stay warm?

The body temperature of most whales is about 37°C, whether they live in the warm tropics or the Arctic. The main way whales keep warm is with a layer of fat, or blubber, underneath their skin. Blubber insulates them from the cold. The thickness of the blubber varies. In the Arctic bowhead whale the blubber layer may be up to 50 cm thick. For most of the larger baleen whales, blubber also serves as 'fuel' for migration into warmer waters, where they mate and give birth, but do not eat. Gray whales, for example, may lose up to 30 per cent of their body weight during their annual winter 'vacation' in the tropics!

How do migrating whales know where they are going?

No-one really knows. Perhaps they can recognize underwater landmarks or familiar water currents. They may use simple sonar, or passive hearing to hear sounds such as breaking surf. Or maybe they use some sense that we don't have and therefore don't understand. Some scientists think whales use the earth's magnetic field to find their way. A compound called magnetite has been found in the brains of some whales, as well as in other animals known to travel great distances. Many long lines of magnetism have been found on the ocean floor. Migrating fin whales seem to follow these paths during their spring and fall migrations.

Why do whales strand?

This is another whale mystery. Many people have theories, but the truth is that we don't know why large groups of whales will drive themselves up onto beaches. Even when towed back to sea, some whales will strand again. Stranding is most common among the very social toothed whales, such as pilot whales and certain dolphins and porpoises. Even killer whales can strand. One group of 20 came ashore on the west coast of Vancouver Island in 1945. They all died. Whales may strand because they are lost. Or perhaps one ill member of a group strands, and the others have followed. Necropsies of stranded whales have revealed that some were sick or injured. Some had parasite infections in their heads, perhaps making them confused. But many others seemed to have nothing wrong with them.

Graeme Ellis

Why do stranded whales usually die?

Although whales breathe air, they are not adapted for life on land. In the ocean, a whale's heavy body is supported by the water. On land, gravity takes over and the whale cannot breathe easily under the weight of its own body. As well, the same features which help keep the whale warm in water, work against it on land. It cannot lose heat fast enough and it begins to "cook" inside. Stranded whales are also vulnerable to sunburn and other skin problems related to being out of water for a long period of time. And stress is a big factor. Imagine how you would feel stranded in the sea for any length of time!

Why do whales breach?

Whales have many exciting behaviours. They can spy-hop by poking their heads out of the water, or tail-lob by smacking their flukes on the surface. There are many others, but perhaps the most breathtaking to see is a breach, when the whale jumps right out of the water. Only the whale knows for sure why it's breaching, but we have a few theories. It may be signalling other whales nearby. It may be trying to knock off parasites, such as barnacles or lice. It could simply be taking a look around. Or maybe it's just having fun!

Graeme Ellis

Do whales sleep?

Whales need their sleep just as much as we do. There's a big difference between us, though. Whales have to think about every breath they take. That limits how long they can sleep at any one time. Whales take 'catnaps' by floating at or near the surface, rising every now and then to breathe. In their winter breeding grounds in Hawaii, humpbacks can often be seen hovering just below the surface of the water. Their eyes are closed and they are still except for the occasional movement of a pectoral fin or their flukes. Pods of killer whales may group closely together when they are resting, moving slowly and quietly forward. Sleep periods can last for a few minutes or several hours.

How well can whales see?

It appears that most whales can see quite well both above and below water. Because the eyes on baleen whales and the sperm whale are located on the side of the head, it is unlikely that they can see one, three-dimensional image with both eyes, as we do. This is known as stereoscopic vision. It is likely that most other whales have stereoscopic vision.

How do whales produce sound?

Most whales make sound of some sort. The whistles, screams, groans and clicks of whales echo throughout the oceans. Toothed whales make high-frequency sounds. Baleen whales tend to make low frequency sounds. Some moans made by the blue whale are so low that we can't hear them, but they travel underwater for hundreds, maybe thousands, of kilometres. Whales have no vocal chords like we do. They make sounds with their blowholes, not their mouths. The exact method is not clearly understood, but it involves air trapped behind the nasal plug in the blowhole. Sometimes this air is released through a partly open blowhole, and small bubbles can be seen as the whale vocalizes. More often there are no bubbles, as air is pushed back and forth inside the nasal cavity in the head. It is not known how the sound 'radiates' out of baleen whales. In toothed whales, sounds are channeled through fatty tissue in the whale's rounded forehead, which is called the melon.

What is echolocation?

Echolocation is a type of 'sonar' used by toothed whales. In addition to vocalizations, toothed whales produce very high-frequency sounds called clicks. They direct these clicks through their melons and listen for the returning echoes. The echoes carry information about objects, such as size, texture, speed, location and whatever else the whale needs to get a three-dimensional picture of its surroundings. Some echolocation clicks are ultrasonic — we can't hear them. Those we can hear sound like a ticking clock, or in the case of the sperm whale, like horse hoofbeats. Toothed whales use echolocation to find food and see where they're going.

How do whales hear sound?

Because they live in water that is often cloudy or dark, whales depend far more upon sound than sight. There are no obvious outward signs of ears, but they do have them. The ear opening is a tiny pinhole in the smooth skin surface on each side of the head. Toothed whales hear sound in a very unusual way. Sound vibrations are 'picked up' through fatty tissue in each side of the hollow lower jaw and conducted to the inner ears.

How do you tell male and female whales apart?

In some whales it's easy because adult males and females look physically different from each other. This is called sexual dimorphism. A good example is the killer whale, where the adult male's dorsal fin is much taller and straighter than the female's. Size is sometimes another clue. Generally, adult females are larger among the baleen whales. But in sperm whales, it is the males that are noticeably bigger. The best way to tell is if you are lucky enough to see the underside of the whale. In the genital region under the tail, there is a long slit called the genital opening. On females, there are two smaller slits on either side of the genital opening. These are her mammary grooves, from which she feeds milk to her calf.

How is a baby whale born and how does it eat?

Expecting a calf is a long-term affair for a mother whale. Baleen whales carry their calves for up to 12 months, while some toothed whales are pregnant for 17 or 18 months. Calves are usually born tail first. The mother or a nearby whale will immediately help it to the surface for its first breath. Although they may look awkward at first, newborn whales can swim and make shallow dives right away. The calf nurses from a pair of nipples in the mammary grooves of its mother. The milk, which can be up to 50 per cent fat, is squirted into the calf's mouth. The growth rates of whale calves can be phenomenal. On their mother's milk — an estimated 250 litres daily — blue whale babies gain over 90 kilograms a day, or almost 4 kilograms an hour!

How do scientists study whales in the wild?

Studying animals that live in the vast oceans and spend up to 95 per cent of their time underwater is not easy. Whaling used to be the source of most information. But those were dead whales. Today, we don't need to kill or even capture whales to study them. We peek into their world using a number of techniques. Patient observation is the basic method — hours and hours of it, recording even the smallest detail. Photo-identification is another way. Killer whales, humpback whales, gray whales, and some dolphins are among the species that can be photographed and identified individually by markings, scars or colour patterns. To listen in to the noisy world of whales, researchers lower underwater microphones, or hydrophones, into the water. In some areas, such as

Hawaii, researchers have special permits to take video film underwater. Some researchers in other parts of the world are trying various methods of tagging and radio tracking. Others are doing genetic studies using tiny skin samples shed or harmlessly removed from the whales. All of these techniques are designed so that the whales are disturbed as little as possible. Even whales that wash up dead on a beach can help us. Tissue samples can often give us details on such things as diet, parasites, and environmental toxins.

How can I become a whale researcher?

Study hard. But first be sure it's what you really want. Being a whale researcher is not as glamorous as you often see on TV documentaries. It is not always sunny, warm and calm during field work, and whales can be very hard to find. Much time is spent in an office or lab analysing data. And finding money to support research is often difficult. To be a biologist who specializes in whale research you must finish high school and go to university. Most whale researchers have at least a Bachelor of Science degree and many continue on to get a graduate degree (a Master's or PhD) in biology. To get these degrees, you have to spend many years doing research under the guidance of experienced scientists. This helps you learn the special techniques used to study whales and their behaviours.

How do I help protect whales?

Anything you do that helps to protect the environment is going to help protect whales. As we learn more about the needs of different whales and their habitats, we are better able to protect them. One way to help is to join conservation organizations who are funding or doing whale research. In many cases, you can also volunteer your time with these organizations. In this way, you will learn many new things while doing your part to protect whales and the environment in general. There is a lot of work to be done and every pair of hands counts! Check with your nearest library to find the names of some of these organizations.

Graeme Ellis

Suggested reading list and *Web sites*

If you would like to know more about whales, dolphins and porpoises, look for the following books in your school or local library, listed here in date order:

Ellis, Graeme M. and Ford, John K.B. *Transients: Mammal-Hunting Killer Whales of British Columbia and Southeast Alaska*. UBC Press, Vancouver, 1999.

Kelsey, Elin. *Finding Out About Whales*. Owl Science Explorer Series, Toronto, 1998

Whales, Dolphins and Porpoises. Reader's Digest Explorer Series, 1997

Whales, Dolphins and Porpoises. National Geographic Society, Washington, DC, 1995

Carwardine, Mark. *Whales, Dolphins and Porpoises*. Eyewitness Handbooks. Stoddart Publishing, Toronto, 1995.

Balcomb, Kenneth C; Ellis, Graeme M; Ford, John K.B. *Killer Whales*. UBC Press, Vancouver, 1994.

Morton, Alexandra. *In the Company of Whales*. Orca Books, Victoria, 1993.

Ellis, Graeme and Obee, Bruce. *Guardians of the Whales*. Whitecap Books, Vancouver, 1992.

Baldridge, Alan and Gordon, David. *Gray Whales*. Monterey Bay Aquarium, Monterey, California, 1991.

Klinowska, Margaret, *Dolphins, Porpoises and Whales of the World*. IUCN, Switzerland, 1991.

Evans, Peter. *The Natural History of Whales and Dolphins*. Helm Publishers, London, 1987.

Hoyt, Erich. *The Whales of Canada: An Equinox Wildlife Handbook*. Camden House Publishing, Ontario, 1984.

Web sites

BC Wild Killer Whale Adoption Program
www.killerwhale.org/

Links to other interesting mammal sites
http://pegasus.cc.ucf.edu/~smm/other.htm

Whale watching web site
http://www.physics.helsinki.fi/whale/

Gray whale

Humpback whale

Killer whale

Minke whale

Pacific white-sided dolphin

Dall's porpoise

Harbour porpoise

Blue whale

Fin whale

Sei whale

Northern right whale

Sperm whale

False killer whale

Baird's beaked whale

Cuvier's beaked whale

Short-finned pilot whale

Risso's dolphin

Northern right whale dolphin

British Columbia is one of the best places in the world to see whales. Whether you're riding a ferry, out for a sail or paddle, or strolling along a beach or rocky headland, there's always the chance of an unforgettable encounter with a whale, dolphin or porpoise. These remarkable marine mammals – collectively known as cetaceans – stir our emotions like few other animals.

Intended for whalewatchers of any age, Whales, Dolphins and Porpoises of British Columbia, Canada, is a guide to 18 species of cetaceans known to inhabit B.C.'s coastal waters, with special attention given to the seven species most often seen. The booklet also provides general information on whales, including the answers to 20 popular whale questions. Do whales sleep? How do whales make sounds? How can I become a whale researcher? Also included – a list of books and web sites about whales in B.C. and around the world.

Whales Dolphins *&* Porpoises

OF BRITISH COLUMBIA, CANADA